

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDCAC10020

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Stenocereus thurberi* (Engelm.) Buxbaum

COMMON NAME: Organ Pipe Cactus, Organ Pipe-cactus, Organpipe Cactus, Pitayo dulce [Spanish]

SYNONYMS: *Cereus thurberi* Engelm., *Lemaireocereus thurberi* (Engelm.) Britt. & Rose, *Pachycereus thurberi* (Engelm.) H. Bravo, *Marshallocereus thurberi* (Engelm.) Backeberg, *Pilocereus thurberi* (Engelm.) Rümpler, *Rathbunia thurberi* (Engelm.) P.V. Heath

FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: *Stenocereus thurberi* F. Buxbaum, Botanische Studien 12: 101. 1961. *Cereus thurberi* Engelm., Amer. Jour. Sci. II. 17: 234-235. 1854.

TYPE LOCALITY: “In a rocky canon near the mountain pass of Bacuachi, a small town on the road to Arispe, Sonora,” Mexico.

TYPE SPECIMEN: HT: MO. G. Thurber s.n., June 1851, flower and a very young fruit. IT: GH, F (A. Schott s.n., 25 July 1855). Typical specimen for characters: “Hills and mesas near Altar, Sonora,” Mexico, collected by Pringle, August 25, 1884, US 41026 and 795791.

TAXONOMIC UNIQUENESS: Species *thurberi* is 1 of 2 in the genus *Stenocereus*.

DESCRIPTION: Large plant with numerous columnar branches arising from ground-level, that resemble the pipes of an organ. Shrubs 9-20(-23) feet (2.7-6[-7] m) high, 6-18 feet (1.8-5.5 m) in diameter; trunk none or (in Mexico) sometimes present, but short. Stem much branched from the base, sometimes rebranched above, erect, yellow-green then green, cylindroidal, the branches 12-20 cm (4.7-8 in) in diameter; ribs (12-)15-17(-20), 9-15 mm high. Areoles are subcircular, 4-6 mm in diameter, about 1-2 cm apart on rib, mostly red-brown woolly, aging gray. The spines are red-brown, coated whitish, aging gray with dark tips, terete, mostly bulbous-based, divergent; central-most spines 3-5 per areole, slender, the longest 1.7-3.2 cm long; peripheral spines 6-11, finer, 1-2 cm long. Flowers that bloom at night, are mostly subterminal, funnelform, 6-9 x 3.5-6 cm (2.4-3.5 x 1.4-2.4 in). The floral tube (which has short scale-leaves overlapping like shingles) is 2-4.5 cm long; outer tepals green, tinged red or rose-red to purplish, obovate; inner tepals white aging lavender or rose-pink with white margins, reflexed, oblong, to 2 cm long, 7 mm broad; stamen filaments cream-white, the anthers yellowish; style white; stigma lobes about 9, white. Fruit is reddish with green scales, glabrous, with dense, deciduous spiny areoles, globose, 3-5(-6.5) cm (1.2-2[-2.6] in) long and wide; pulp juicy, red, and sweet. The

seeds are black, glossy, finely pitted, obovate, about 2 mm long and 1.2 mm wide. (Benson 1979 and 1982; Pinkava 1995, FNA 1993+).

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: Color photos (Benson 1982: pp. 576-579)
B&W drawing (Benson 1982: pp. 580).
Color photos (<http://www.starwon.com.au/.....>)
Color photos (<http://helios.bto.ed.ac.uk/bto/desbiome/organpipe.htm>)
Color photo (DBG 1999: <http://www.dbg.org/Involved/organpipe.html>)
Color photo of Holotype (MO-2004506, *in* http://mobot.mobot.org/cgi-bin/search_vast)
Color photo of specimen (ASU-6999, *in* SEINet at <http://seinet.asu.edu/collection/>)
Line drawing (*in* Flora of North America 1993+, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415268)
Color photo (*in* http://www.blueplanetbiomes.org/organ_pipe_cactus.htm)
Color photo (*in* <http://www.halice.com/tucson/cacti.html>)
Color photo (*in* http://www.americansouthwest.net/arizona/organ_pipe/organ1_1.html)
Color photos (Virginia Tech Forestry Department, 2005-2006, http://www.cnr.vt.edu/dendro/dendrology/syllabus2/stenocereus_thurberi.htm)

TOTAL RANGE: Southwest Arizona (USA), to Baja California, Baja California Sur, Sinaloa, and Sonora, Mexico.

RANGE WITHIN ARIZONA: In Pinal, Pima and Maricopa counties west from Growler Mountains southwest of Ajo to (according to Nichol *in* Benson 1982) the Picacho, Roskrige, and Saucedo mountains.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Columnar cacti

PHENOLOGY: Flowers May to July. Fruits mature in the late summer or fall. The older plants flower annually. The many buds near the top of the stems open on different days, so the flowering season can last several weeks.

BIOLOGY: Pollination occurs mainly by bats, but also by bees. When the sweet, fleshy fruits ripen in late summer, they are eaten by a variety of desert wildlife, including white-winged doves, fruit-eating bats, ants, and desert bighorn sheep (DBG 1999, Felger 2000). The form of the plant is determined partly by local climate, and in Arizona the plants branch more than in the

warmer climate of Sonora. The more severe winter frosts of Arizona seldom kill the entire plant but often freeze the tender terminal buds; new shoots may then arise from near ground level, or a lateral bud near the top of each stem may replace the terminal bud, causing an offset of the branch. (Benson 1982).

The Organ Pipe Cactus needs shade and protection for several years during its seedling stages, so the seedlings develop beneath “nurse plants” such as the desert ironwood, palo verde and triangle-leaf bursage. The nurse plant may remain stunted or die, as the cactus grows and matures capturing so much of the available water, using its extensive superficial root system (confined to the upper 10 cm of soil).

HABITAT: Widespread in Sonoran Desert, adjacent thorn forests mostly on hills and bajadas; below 1100 m (3700 ft). (Pinkava 1995).

ELEVATION: Generally elevations below 3,700 feet (1128 m). FNA (1993+) reports elevations from 20-1100 m (66-3607 ft). In Arizona, from 1,360-3,000 ft (415-915 m).

EXPOSURE: Primarily on south- to southeast-facing rocky slopes on the Organ Pipe Cactus National Monument (OPCNM), but also occurs on southwest-facing slopes elsewhere.

SUBSTRATE: Rocky or sandy well drained soils.

PLANT COMMUNITY: Sonoran Desert, Upland Sonoran desert scrub. In Arizona, associated species include: *Acacia constricta* (Mescat acacia), *Ambrosia deltoidea* (triangle bursage), *Carnegiea gigantea* (Saguaro cactus), *Echinocereus engelmannii* (Engelmann hedgehog-cactus), *Encelia farinosa* (white brittlebush), *Ferocactus wislizeni* (Southwestern barrel-cactus), *Fouquieria splendens* (Ocotillo), *Larrea tridentata* (creosotebush), *Lycium* (desert-thorn), *Olneya tesota* (Ironwood tree), *Opuntia acanthocarpa* (Stag-horn cholla), *O. fulgida* (Sonoran jumping cholla), and *Parkinsonia microphylla* (littleleaf paloverde). (SEINet, accessed 2005).

POPULATION HISTORY AND TRENDS: Widely distributed and abundant on the Organ Pipe Cactus National Monument (Bowers 1980). Per NatureServe (2005), restricted range; at times locally abundant.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	None
STATE STATUS:	None
OTHER STATUS:	None (USDI, BLM AZ 2005) [Bureau of Land Management Sensitive (USDI, BLM AZ 2000)]

MANAGEMENT FACTORS: Human-influenced impacts or threats to organ pipe cactus populations within the monument (OPCNM), though not presently obvious, might occur from pesticide drift from Mexican agriculture, past grazing, and possibly from global climate change (USGS and NPS 1998). As with most cacti, it is subject to horticultural collecting.

PROTECTIVE MEASURES TAKEN: Creation of the Organ Pipe Cactus National Monument, in the United States, to protect the northern most range of this species

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: BIA – Tohono O’Odham Nation; BLM – Phoenix Field Office; FWS – Cabeza Prieta National Wildlife Refuge; NPS – Organ Pipe Cactus National Monument; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Benson, L. 1979. The Cacti of Arizona. Third Edition. The University of Arizona Press. Tucson, Arizona. Pp. 111-114.
- Benson, L. 1982. The Cacti of the United States and Canada. Stanford University Press. Stanford California. P. 935.
- Bowers, J.E. 1980. Flora of Organ Pipe Cactus National Monument. Jour. AZ-Nev Acad. Sci. Desert Botanical Garden (DBG). 1999. Organ Pipe Cactus, *Stenocereus thurberi* (Engelm.) Buxb. = *Lemaireocereus thurberi* (Engelm.) Br. & R.
<http://www.dbg.org/Involved/organpipe/html>. Accessed 2001.
- Faucon, P. 1998-2005. Web abstract: Organ Pipe Cactus, Pitahaya Dulce (*Stenocereus thurberi*). http://www.desert-tropicals.com/Plants/Cactaceae/Stenocereus_thurberi.html. Accessed 2005.
- Felger, R.S. 2000. Flora of the Gran Desierto and Río Colorado of Northwestern Mexico. The University of Arizona Press. Tucson, Arizona. Pp. 225-226.
- Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 7+ vols. New York and Oxford.
- Global Biodiversity Information Facility (GBIF). GBIF Biodiversity Data Portal. Accessed 8/3/2005. <http://www.gbif.net/portal>.
- Harvard University Herbaria. 2001. Index of Botanical Specimens.
<http://brimsa.huh.harvard.edu/cms-wb/specimens.jsp>. Accessed: 8/3/2005.
http://www.blueplanetbiomes.org/organ_pipe_cactus.htm.
- Integrated Taxonomic Information System (ITIS). Retrieved 8/3/2005 from ITIS, <http://www.itis.usda.gov>.
- Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Stenocereus thurberi* (Engelm.) Buxb. http://mobot.mobot.org/cgi-bin/search_vast. Accessed: 3 Aug 2005.

- NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.5. NatureServe, Arlington, Virginia. Available: <http://www.natureserve.org/explorer>. (Accessed: August 3, 2005).
- Pinkava, D.J. 1995. Cactaceae, Part 1. Cactus Family, The Cereoid Cacti. J. Arizona-Nevada Acad. Sci. Vol. 29, Issue 1, pp. 6-12.
- SEINet. Collections Search Result. Accessed 8/3/2005 and 8/8/2005 at <http://seinet.asu.edu/collections/list.jsp>.
- The Field Museum. 2004. Botany Collection Database. <http://emuweb/fieldmuseum.org/botany/>. Accessed 8/3/2005.
- U.S. Geological Survey, Cooperative Park Studies Unit and National Park Service, Organ Pipe Cactus National Monument. 1998. Organ Pipe Cactus National Monument ecological monitoring program annual report 1994. The Division of Natural and Cultural Resources Management, Organ Pipe Cactus National Monument.
- USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- USDI, Bureau of Land Management. 2000. Arizona BLM sensitive species list. Instruction Memorandum No. AZ-2000-018.
- USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Stenocereus: from the Latin adjective *Stenos* meaning narrow and the Latin word *Cereus* meaning a wax taper. *Thurberi*: for George Thurber (1821-1890) a collector in the American Southwest and Mexico.

“This species was important to Native Americans. The ripe fruit was eaten fresh or dried for storage. The wood of the ribs was used for construction and for torches.” (DBG 1999).

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